Amendments to the Claims

Please amend Claims 1, 7 and 8. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Currently Amended) A method of identifying ~~a drug~~ an antibody that inhibits the HIV membrane fusion machinery by inhibiting interactions between the N36 peptide trimer and the C34 peptide trimer of HIV gp41, comprising:
   (a) combining HIV gp41 N36 peptide trimer, HIVgp41 C34 peptide trimer and ~~a drug~~ an antibody to be assessed for its ability to inhibit interaction between the two trimers, to produce a combination;
   (b) maintaining the combination under conditions appropriate for interactions to occur between N36 peptide trimers and C34 peptide trimers; and
   (c) assessing whether interactions occurred between N36 peptide trimers and C34 peptide trimers,

   wherein if interactions between the N36 peptide trimer and the C34 peptide trimer did not occur in the presence of the ~~drug~~ antibody or occurred to a lesser in the presence of the ~~drug~~ antibody than in its absence, the ~~drug~~ antibody is ~~a drug~~ an antibody that inhibits the HIV membrane fusion machinery.

2. (Original) The method of Claim 1 wherein in step (c) the interaction assessed is packing of amino acid residues or peptides of C34 peptide trimers into highly conserved cavities on N36 peptide trimers.

3. (Original) The method of Claim 2 wherein the interaction assessed is packing of amino acid residues or peptides of C34 into cavities on N36 peptide trimers which are:
   (a) lined by Leu-566 of the left N36 helix and Leu-565 of the right N36 helix;

(b) formed on the left side by sidechains from the left N36 helix, including residues (top to bottom) Val-570, Lys-574 (aliphatic portion) and Gln-577;

(c) formed on the right side by residues Leu-568, Trp-571 and Gly-572 of the right N36 helix; and

(d) composed on its floor of Thr-569, Ile-573 and Leu-576.

4. (Original) A method of producing a drug which inhibits interaction of two components of the core of fusion-active HIV-1 envelope gp41, wherein the two components are referred to as N36 peptide trimer and C34 peptide trimer, respectively, comprising identifying a compound or designing a compound which fits into a cavity on the N36 peptide trimer which is:

(a) lined by Leu-566 of the left N36 helix and Leu-565 of the right N36 helix;

(b) formed on the left side by sidechains from the left N36 helix, including residues (top to bottom) Val-570, Lys-574 (aliphatic portion) and Gln-577;

(c) formed on the right side by residues Leu-568, Trp-571 and Gly-572 of the right N36 helix; and

(d) composed on its floor of Thr-569, Ile-573 and Leu-576.

5. (Original) The method of Claim 4 wherein N36 peptide trimer and C34 peptide trimer are recombinantly produced.

6. (Original) A method of producing a drug which inhibits interaction of N36 peptide trimer with C34 peptide trimer, wherein N36 peptide trimer and C34 peptide trimer comprise the core of fusion-active HIV-1 envelope gp41, comprising identifying a compound or designing a compound which:

(a) fits into a cavity on the N36 peptide trimer:

(1) lined by Leu-566 of the left N36 helix and Leu-565 of the right N36 helix;

(2) formed on the left side by sidechains from the left N36 helix, including residues (top to bottom) Val-570, Lys-574 (aliphatic portion) and Gln-577;

(3) formed on the right side by residues Leu-568, Trp-571 and Gly-572 of the right N36 helix; and

(4) composed on its floor of Thr-569, Ile-573 and Leu-576 and

(b) mimics the ability of Ile-635, Trp -631 and Trp-628 of C34 peptide trimer to fit into the cavity of (a) and Asp-632 of C34 peptide trimer to form a conserved salt bridge with Lys-574 of the N36 peptide trimer.

7. (Currently amended) A compound which inhibits interaction of N36 peptide trimer of the α-helical domain of HIV-1 gp41 which is the core or fusion active gp41 with C34 peptide trimer of the ~~x-helical~~ α-helical domain.

8. (Currently amended) The compound of ~~Claim 8~~ Claim 7 wherein the compound fits into a cavity on the N36 peptide trimer:

(a) lined by Leu-566 of the left N36 helix and Leu-565 of the right N36 helix;

(b) formed on the left side by sidechains from the left N36 helix, including residues (top to bottom) Val-570, Lys-574 (aliphatic portion) and Gln-577;

(c) formed on the right side by residues Leu-568, Trp-571 and Gly-572 of the right N36 helix; and

(d) composed on its floor of Thr-569, Ile-573 and Leu-576.